

**IN THE SPECIFICATION:**

Please **REPLACE** paragraph 0007 with the following paragraph:

a1 --U.S. Patent No. 5,961,672 discloses a mixed electrolyte solution of 1,3-dioxolane/diglyme/sulfolane ~~sulforane~~/dimethoxyethane in a ratio of 50/20/10/20 comprising 1M of  $\text{LiSO}_3\text{CF}_3$  in order to improve the cycle life and safety, and a negative electrode of lithium metal coated with a polymer.--

Please **REPLACE** paragraph 0021 with the following paragraph

a2 --The first solvent having the high dielectric constant has a high polarity so that it can dissolve an ionic compound, such as lithium sulfide ( $\text{Li}_2\text{S}$ ) or lithium polysulfide ( $\text{Li}_2\text{S}_n$ ,  $n=2, 4, 6, 8$ ). For example, it is preferable to use at least one solvent selected from a group consisting of ethylene carbonate, propylene carbonate, dimethyl sulfoxide, sulfolane~~sulforane~~,  $\gamma$ -butyrolactone, acetonitrile, dimethyl formamide, methanol, hexamethyl phosphoramide, ethanol and isopropanol.--

Please **REPLACE** paragraph 0022 with the following paragraph

a3 -- Since the first solvent, which has the high dielectric constant, is very viscous, the present invention uses a second solvent having a viscosity that is less than or equal to 1.3 to counter this high viscosity. An example of this second solvent is at least one solvent selected from a group consisting of methylethyl ketone, pyridine, methyl formate, ~~tetrahydrofuran~~ tetrahydrofuran, diglyme (2-methoxyethyl ether), 1,3-dioxolane, methyl acetate, 2-methyl ~~tetrahydrofuran~~tetrahydrofuran, ethyl acetate, n-propyl acetate, ethyl propionate, methyl propionate, ethyl ether, diethyl carbonate, methylethyl carbonate, dimethyl carbonate, toluene, fluorotoluene, 1,2-dimethoxy ethane, benzene, fluorobenzene, p-dioxane and cyclohexane.--

Please **REPLACE** paragraph 0032 with the following paragraph:

a4 --60 % of an elemental sulfur, 20 % of a super P conductive material, and 20 % of a poly(vinyl acetate) were mixed in an acetonitrile solvent until a slurry was evenly mixed. The slurry was coated on an Al current collector coated with carbon. Before fabricating the coated positive electrode, it was dried for more than 12 hours under vacuum. The positive electrode and a vacuum-dried separator were transferred to a glove box. A proper amount of an electrolyte comprising 1 M of  $\text{LiSO}_3\text{CF}_3$  as a salt was placed on the positive electrode. The separator was placed on the positive electrode, a small amount of the electrolyte was added,

and the lithium electrode was placed thereon. After staying 24 hours at room temperature, the fabricated batteries underwent charging/discharging for 1 cycle at 0.1C, 3 cycles at 0.2C, 5 cycles at 0.5C, and 100 cycles at 1.0C under 1.5 V to 2.8V of cut-off voltage. The composition of electrolyte and the result of charging/discharging cycle are shown in Table 1.

Table 1

	Electrolyte (ratio)	Cycle life characteristic (100cycles/initial)%	Initial discharge capacity (mAh/g)
Example 1	<u>sulfolane</u> <del>Sulfolane</del> /toluene (40/60)	52 %	612
Example 2	<u>sulfolane</u> <del>Sulfolane</del> /n-propyl acetate (40/60)	56 %	612
Example 3	Ethylene carbonate/dimethoxy ethane (40/60)	55 %	617
Example 4	Propylene carbonate/2-methyl <del>tetrahydrofuran</del> <del>tetrahydrofuran</del> (50/50)	63 %	625
Com. Example1	1,3-dioxolane/diglyme/ <del>sulfolane</del> <u>sulfolane</u> /dimethoxy ethane (50/20/10/20)	44 %	571

Please **REPLACE** paragraph 0033 with the following paragraph:

--Comparing Examples 1 to 4 with Comparative Example 1, the initial discharge capacity of the battery prepared in Comparative Example 1 is 571 mAh/g, which is 7% to 9% lower than the initial discharge capacities of Examples 1 to 4. The cycle life characteristic of the batteries of Examples 1 to 4 is 8% to 16 % higher than the cycle life characteristic of Comparative Example 1. This is because a solvent having a high dielectric constant and a high polarity increases the solubility of the lithium polysulfide generated during the discharge. In contrast, the electrolyte of Comparative Example 1 has only 10 % of a high polarity solvent (sulfolane ~~sulfolane~~) and, thus, the solubility of the lithium polysulfide generated during discharge decreases.--

Please REPLACE paragraph 0035 with the following paragraph:

--The batteries were fabricated according to the same method as in Examples 1 to 4, except that the electrolyte was used as in the following composition of Table 2. After staying 24 hours at room temperature, the fabricated batteries underwent charging/discharging for 1 cycle at 0.1C, 3 cycles at 0.2C, 5 cycles at 0.5C, and 100 cycles at 1.0C under 1.5 V to 2.8V of cut-off voltage. The result is shown in Table 2.

Table 2

	Electrolyte (ratio)	Additive (content, wt%)	Cycle life characteristic (100cycles/initial)%	Initial discharge capacity (mAh/g)
Example 5	<u>sulfolane</u> <del>Sulforane</del> /toluene (40/60)	Vinylene carbonate (2 wt %)	60 %	632
Example 6	<u>sulfolane</u> <del>Sulforane</del> /toluene (40/60)	Ethylene sulfite (2 wt %)	59 %	640
Example 7	<u>sulfolane</u> <del>Sulforane</del> /toluene (40/60)	Bismuth carbonate (2 wt %)	52 %	625
Com. Example 2	1,3-dioxolane/ diglyme/ <u>sulfolane</u> <del>sulforane</del> /dimethoxy ethane (50/20/10/20)	Vinylene carbonate (2 wt %)	55 %	568